



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/596,829	03/29/2007	Frank Schmidt	117842-003	1032
29176 7590 02/04/2009 BELF., BOYD & LLOYD LLP P.O. BOX 1135 CHICAGO, IL 60690				
EXAMINER VORTMAN, ANATOLY				
ART UNIT 2835		PAPER NUMBER		
MAIL DATE 02/04/2009		DELIVERY MODE PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/596,829

**Applicant(s)**

SCHMIDT ET AL.

**Examiner**

ANATOLY VORTMAN

**Art Unit**

2835

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 March 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 12-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 12-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on N/A is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/CDC)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date 10/23/06, 5/7/07

## **DETAILED ACTION**

### ***Drawings***

1. The subject matter of this application admits of illustration by a drawing to facilitate understanding of the invention. Currently, there are no drawings on file in the instant 371 application. For examination purposes, the drawings from the underlying PCT/EP04/09537 have been used. Applicant is required to furnish a drawing under 37 CFR 1.81(c). No new matter may be introduced in the required drawing. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d).

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 12 and 13, are rejected under 35 U.S.C. 102(b) as being anticipated by US/4,523,172 to Drothen et al. (Drothen).

Regarding claims 12 and 13, Drothen disclosed (Fig. 2) a fusible conductor for a fuse element, said fusible conductor comprising: an electrically insulating core (3, 6); a fusible wire

(4, 7) wound about the core (3, 6); and at least one electrically insulating fiber (10, 11) wound about the core parallel and closely adjacent to the fusible wire such that the fusible wire is fixed in position so that a short circuit of adjacent turns of the fusible wire is (inherently) prevented.

4. Alternatively, claim 12 and 13, are rejected under 35 U.S.C. 102(b) as being anticipated by US/ 3,486,155 to MCCAUGHNA.

Regarding claims 12 and 13, MCCAUGHNA disclosed (Fig. 1, 2) a fusible conductor for a fuse element, said fusible conductor comprising: an electrically insulating core (12); a fusible wire (11) wound about the core (12); and at least one electrically insulating fiber (10) wound about the core parallel and closely adjacent to the fusible wire such that the fusible wire is fixed in position so that a short circuit of adjacent turns of the fusible wire is (inherently) prevented.

#### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 14-22, are rejected under 35 U.S.C. 103(a) as being unpatentable over US/4,523,172 to Drothen taken alone.

Regarding claims 14-16, Drothen disclosed all as applied to claim 13 above, and further, that both fusible wires and one insulating fiber have an approximately circular cross section (Fig.

3b), but did not specify the ranges for the ratio of the diameter of the fusible wire to that of the insulating fiber (i.e. between 1/3 and 3, or between 1 and 3), and for the spacing between the turns of the fusible wire (i.e. 0.2 to 2 times the diameter of the fusible wire).

It would have been obvious to a person of the ordinary skill in the fuse art at the time of the invention to select any appropriate ranges for the aforementioned ratio and for the spacing, including as claimed, or any suitable value within said claimed ranges, in order to achieve the desired mechanical and electrical properties of the fusible conductor, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233. Further, it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). All claimed elements and methods have been known in the prior art at the time of the invention, and one skilled in the fuse art could have modified the elements as claimed by known methods with no change in their respective functions, and the modification would have yielded predictable results to one of ordinary skill in the art at the time of the invention. See *KSR International Co. v. Teleflex Inc.*, 550 U.S. \_\_\_, 82 USPQ2d 1385 (2007).

Regarding claim 17, Drothen disclosed that the spacing between the adjacent turns is smaller than the diameter of the fusible wire (Fig. 5).

Regarding claim 18, Drothen disclosed that the outer surface of the wound fusible wire (7) projects beyond the outer surface of the insulating fiber (10, 11) (Fig. 5).

Regarding claim 19, Drothen disclosed that the core (3, 6) has a circular cross section and the cross sectional dimensions of the insulating fiber (10, 11) are smaller than the diameter of the core (Fig. 3b, 4, and 5).

Regarding claims 20-22, Drothen disclosed all as applied to claim 12, but the specific materials the insulating fiber and the core are made of (i.e. glass or ceramic fibers).

The glass and ceramic fibers have been well known in the fuse art at the time of the invention as good insulating materials. Therefore, it would have been obvious to a person of the ordinary skill in the fuse art at the time of the invention to select any appropriate well known insulating materials (including as claimed) to make said insulating fiber and core of the fuse of Drothen, in order to achieve the desired mechanical and electrical properties of the fusible conductor, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416. All claimed elements and methods have been known in the prior art at the time of the invention, and one skilled in the fuse art could have modified the elements as claimed by known methods with no change in their respective functions, and the modification would have yielded predictable results to one of ordinary skill in the art at the time of the invention. See *KSR*, supra.

### ***Conclusion***

7. The additional prior art made of record on PTO-892 was not relied upon, but is considered pertinent to the applicant's disclosure, because of the teachings of various electrical fuses comprising wound fusible conductors.
  
8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANATOLY VORTMAN whose telephone number is (571)272-2047. The examiner can normally be reached on Monday-Thursday, between 10:00 am and 8:30 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Jayprakash Gandhi can be reached on 571-272-3740. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Anatoly Vortman/  
Primary Examiner, Art Unit 2835